

and

then allowing thermal contact of the remaining low temperature and pressure liquid and the cooled substance causing the low temperature and pressure liquid
5 to further reversibly boil to a vapor at the low pressure.

2: A refrigeration system comprising:

at least one compressor for compressing low pressure vapor refrigerant to a
10 higher temperature and pressure vapor,

at least one condenser for condensing the high pressure vapor refrigerant into a liquid refrigerant at the higher pressure,

15 at least one cooling evaporator from which the liquid is thermally-isolated for cooling the high pressure liquid until the high pressure liquid approaches a low preset temperature and pressure, or the temperature of a cooled substance,

powering an engine with the pressure difference between the thermally-isolated
20 liquid and the low pressure vapor refrigerant,

and

at least one evaporator for allowing thermal contact of the remaining low temperature and pressure liquid and the cooled substance causing the low temperature and pressure liquid to further reversibly boil to a vapor at a low pressure.

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3: The system as described in claim 2 wherein the cooling evaporator from which the high pressure liquid refrigerant is isolated is the same as the evaporator for allowing thermal contact of the remaining low temperature and pressure liquid with the cooled substance.

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4: The system as described in claim 2 wherein the cooling evaporator from which the high pressure liquid refrigerant is isolated is not the same as the evaporator for allowing thermal contact of the remaining low temperature and pressure liquid with the cooled substance.

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5. The system as described in claim 2 wherein the cooling evaporator from which the liquid is isolated and which is used for cooling the high pressure liquid until the high pressure liquid approaches the lower temperature and pressure of a cooled substance, contains a liner of low thermal conductivity.

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6. The system as described in claim 2 wherein cooling evaporator from which the liquid is isolated and which is used for cooling the high pressure liquid until

the high pressure liquid approaches the lower temperature and pressure of a cooled substance, is made of a material which has a low thermal conductivity.